

IN THE SPECIFICATION:

Please replace paragraph number [0029] with the following rewritten paragraph:

[0029] In an alternative arrangement, the glob top material 38 may be applied to overcover a major portion or all of the heat sink 30. This results in decreased heat dissipation capability, however, but may be used where the thermal output of the semiconductor device permits.

Please replace paragraph number [0033] with the following rewritten paragraph:

[0033] In drawing FIG. 3A, a semiconductor die 12 has an active surface 14 with bond pads 16 near opposing sides of the semiconductor die 12. The back side 18 of the semiconductor die 12 is first bonded to the upper surface 26 of the substrate 20 by a layer of adhesive 40. The substrate 20 may be a printed circuit board (PCB) or other materials such as a flex circuit or ceramic. A layer of a thermally conductive-filled gel elastomer 50 may be either applied to the semiconductor die while in wafer form or subsequently applied to active surface 14 between the arrays of bond pads 16 of the semiconductor die 12 after singulation of the semiconductor die 12 from the wafer. The purpose of the gel elastomer 50 is to provide a protective mask over an area of the semiconductor die 12 to which the heat sink 30 (FIG. 3E) is to be bonded. Alternatively, when the second layer is used as a mask, the first layer may be retained on a portion of the semiconductor die 12 after the molding or glob-topping of the semiconductor die 12 for the attachment of a heat sink thereto, if desired (to be described in FIG. 3C). The gel elastomer 50 is applied as a gel or as a semi-solid or solid coupon. The gel elastomer 50, or a suitable silicon elastomeric material, ~~etc.~~ etc., if the gel elastomer 50 is to be disposed after removal from the semiconductor die 12, or the use of a metal-filled gel elastomer 50, if such is to remain on the semiconductor die 12, may include one or more dams 52 to help prevent the flow of any subsequently applied material from covering the surface of the gel elastomer 50. The dams 52 may extend along one or more sides of the semiconductor die 12, as desired, and may be of any suitable height. The dams 52 may be of any suitable material. Alternatively, the dams 52 may comprise a second layer of gel elastomer 50 having a size smaller than that of the gel

elastomer 50. Subsequent glob top application is difficult to precisely control, and any glob top material 38 which lands on the gel elastomer 50 will be later removed by removal of the gel elastomer from the active surface 14 of the semiconductor die 12. Typically, the gel elastomer 50 may be removed simply by peeling it from the active surface 14 of the semiconductor die 12. Typically, if the gel elastomer 50 is to be removed from the semiconductor die 12 after the glob top material application, a silicon type elastomer may be used on the semiconductor die 12 and removed therefrom for the application of a heat sink to the semiconductor die 12.

Please replace paragraph number [0048] with the following rewritten paragraph:

[0048] As depicted in drawing FIG. 4A, a flip-chip or semiconductor die 12 having an active surface 14 with a grid of electrical connections 56, shown as solder balls, is down bonded to electrical circuit traces 54 (not shown) on an upper surface 26 of a substrate 20. The semiconductor die 12 has an opposing back side 18 and edges 32. The substrate 20 may be a printed circuit board (PCB) or other material such as a flex circuit or ceramic. A layer or coupon of thermally conductive-filled gel elastomer 50, alternatively, a suitable elastomer, silicon elastomeric material, ~~etc.~~ etc., if the gel elastomer 50 is to be discarded, is applied as a solid or semisolid to the back side 18 of the semiconductor die 12, either before or (preferably) after the semiconductor die 12 is electrically down bonded to the substrate 20. The gel elastomer 50 masks the back side 18 from glob top material 38 which may be inadvertently misapplied to the back side 18, requiring removal by erosive blasting or other methods. The use of the gel elastomer 50 obviates such glob top removal methods.

Please replace paragraph number [0054] with the following rewritten paragraph:

[0054] Alternatively, a room temperature vulcanizing rubber (RTV), which may vary in the degree of thermal conductivity thereof, may be used to completely cover and seal the semiconductor device to the substrate 20, including the glob top material 38.

Please replace paragraph number [0058] with the following rewritten paragraph:

[0058] The ~~gel-elastomer~~ elastomer 50 may also be used as a permanent compliant member 70 between a semiconductor die 12 and a heat sink 30. As depicted in drawing FIG. 5, a semiconductor die 12 has an active surface 14 with a ball grid array (BGA) of electrical connections 56 connected to traces (not shown) on a circuit board or other substrate 20. A layer 70 of gel elastomer is then applied to inside attachment surface 46 of a cap style heat sink 30. The heat sink 30 may be finned, or have no fins 28. In one embodiment, the heat sink 30 has lateral walls 62 whose lower edges 64 are designed to abut the upper surface 26 of the substrate 20. Alternatively (FIG. 6), a portion of the substrate 20 is configured to fit within the open end 66 of the heat sink 30.